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EXAMINER	
KNOLL, CLIFFORD H	
ART UNIT	**PAPER NUMBER**
2112	5

DATE MAILED: 12/30/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/900,124	TSENG, PING-SHENG	
	Examiner	Art Unit	
	Clifford H Knoll	2189	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *11/7/01*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-30* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-30* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

13)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

a) ☐ The translation of the foreign language provisional application has been received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Claim Objections

1. Claim 8 is objected to because of the following informalities:

In claim 8, "determining which" should be "determining to which".

Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 1 and 21 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 1, the "group that changed in value M bits at a time" is unclear because it is not clear whether "M bits at a time" refers to changing. Applicant should clarify what is changing; also "M bits at a time" which evidently refers to the "transmitting" should be recited unambiguously.

In claim 21, the "depending on which packet scheduler" and "each packet scheduler" is unclear, because it is unclear what dependency is intended to be recited.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1-18, 26 are rejected under 35 U.S.C. 102(e) as being anticipated by Chapin (US 5948073).

Regarding claim 1, Chapin discloses transmission logic in the first logic device for transmitting any N-bit signal group that changed in value M bits at a time (e.g., col.5, lines 35-38), reception logic for receiving the N-bit signal group (e.g., col.5, lines 58-59).

Regarding claim 2, Chapin also discloses an event detector for detecting a change in value among the N-bit signal groups and providing an event indication identifying the particular changed signal group (e.g., col.5, lines 35-38).

Regarding claim 3, Chapin also discloses an event detector for each N-bit signal group detecting a change in value among the N-bit signal groups and providing an event indication identifying the particular changed signal group (e.g., col.5, lines 35-38). (e.g., col.5, lines 45-48).

Regarding claims 4 and 5, Chapin also discloses N>M and receiving the event indication and dividing the N-bit signal group into M-bit data groups (e.g., col.5, lines 59-62).

Regarding claims 6 and 7, Chapin also discloses scan out logic for selecting the M-bit data groups for transmission across the M-bit conductive element (e.g., col.5, lines 60-62).

Regarding claim 8, Chapin also discloses header decode unit to receive the M-bit data groups and determining to which N-bit signal group these data groups belong (e.g., col.5, lines 45-48).

Regarding claim 9, Chapin also discloses receiving, holding and passing a token (e.g., col.5, lines 35-38).

Regarding claim 10, Chapin also discloses transmitting the M-bit data groups when it holds a token (e.g., col.5, lines 25-27).

Regarding claim 11, Chapin also discloses holding the token when it receives an event indication (e.g., col.5, lines 39-40).

Regarding claim 12, Chapin also discloses passing the token when it does not receive an event indication (e.g., col.5, lines 39-41).

Regarding claim 13, Chapin discloses an event detector network for detecting a change in value among the N-bit signal groups (e.g., col.5, lines 35-36), and selecting the N-bit signal group that changed in value and scheduling its transmission (e.g., col.5, lines 37-40).

Regarding claim 14, Chapin also discloses N>M and dividing the N-bit signal into a plurality of M-bit groups (e.g., col.5, lines 60-62).

Regarding claim 15, Chapin also discloses event detectors, each associated with its own N-bit signal group (e.g., col.5, lines 45-48).

Regarding claim 16, Chapin also discloses an event detector for each N-bit signal group detecting a change in value among the N-bit signal groups and providing an event indication identifying the particular changed signal group (e.g., col.5, lines 35-38).

Regarding claim 17, Chapin also discloses the scheduler includes a plurality of packet schedulers each associated with its own N-bit signal group (e.g., col.5, lines 35-48).

Regarding claim 18, Chapin also discloses the scheduler includes a plurality of packet schedulers each associated with its own N-bit signal group (e.g., col.5, lines 35-48).

Regarding claim 26, Chapin discloses detecting a change in value among the N-bit signal groups (e.g., col.5, lines 35-38), selecting the changed N-bit signal group for transmission, processing into a transmission data group and transmitting the group across the M-bit wide connection (e.g., col.5, lines 58-60).

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1-30 are rejected under 35 U.S.C. 102(b) as being anticipated by Hara (US 5031095).

Regarding claim 1, Hara discloses transmission logic in the first logic device for transmitting any N-bit signal group that changed in value M bits at a time (e.g., col.6, lines 55-58), reception logic for receiving the N-bit signal group (e.g., col.6, lines 46-49).

Regarding claim 2, Hara also discloses an event detector for detecting a change in value among the N-bit signal groups and providing an event indication identifying the particular changed signal group (e.g., col.6, lines 26-30).

Regarding claim 3, Hara also discloses an event detector for each N-bit signal group detecting a change in value among the N-bit signal groups and providing an event indication identifying the particular changed signal group (e.g., col.6, lines 26-30).

Regarding claims 4 and 5, Hara also discloses N>M and receiving the event indication and dividing the N-bit signal group into M-bit data groups (e.g., col.6, lines 46-49).

Regarding claims 6 and 7, Hara also discloses scan out logic for selecting the M-bit data groups for transmission across the M-bit conductive element (e.g., col.6, lines 46-49).

Regarding claim 8, Hara also discloses header decode unit to receive the M-bit data groups and determining to which N-bit signal group these data groups belong (e.g., col.9, lines 15-19).

Regarding claim 9, Hara also discloses receiving, holding and passing a token (e.g., col.7, lines 62-65).

Regarding claim 10, Hara also discloses transmitting the M-bit data groups when it holds a token (e.g., col.7, lines 62-65).

Regarding claim 11, Hara also discloses holding the token when it receives an event indication (e.g., col.6, lines 26-30).

Regarding claim 12, Hara also discloses passing the token when it does not receive an event indication (e.g., col.6, lines 26-30).

Regarding claim 13, Hara discloses an event detector network for detecting a change in value among the N-bit signal groups (e.g., col.6, lines 26-30), and selecting the N-bit signal group that changed in value and scheduling its transmission (e.g., col.7, lines 29-31).

Regarding claim 14, Hara also discloses N>M and dividing the N-bit signal into a plurality of M-bit groups (e.g., col.8, lines 5-10).

Regarding claim 15, Hara also discloses event detectors, each associated with its own N-bit signal group (e.g., col.9, lines 17-18).

Regarding claim 16, Hara also discloses an event detector for each N-bit signal group detecting a change in value among the N-bit signal groups and providing an event indication identifying the particular changed signal group (e.g., col.9, lines 17-18).

Regarding claim 17, Hara also discloses the scheduler includes a plurality of packet schedulers each associated with its own N-bit signal group (e.g., col.4, lines 2-7).

Regarding claim 18, Hara also discloses the scheduler includes a plurality of packet schedulers each associated with its own N-bit signal group (e.g., col.4, lines 2-7).

Regarding claim 19, Hara also discloses the packet schedulers decide among themselves which signal group to transmit (e.g., col.5, lines 20-25).

Regarding claim 20, Hara also discloses N>M, and each packet scheduler receives the event indication and divides the N-bit signal group into M-bit data groups (e.g., col.7, lines 46-54).

Regarding claim 21, Hara also discloses the packet schedulers pass tokens to each other, holding or passing the token (e.g., col.8, lines 31-44).

Regarding claims 22 and 23, Hara also discloses the packet scheduler transmits its M-bit data when it holds a token (e.g., col.8, lines 19-24).

Regarding claim 24, Hara also discloses holding a token when it receives the token and an event indication (e.g., col.8, lines 21-23).

Regarding claim 25, Hara also discloses passing a token when it receives the token and no event indication has been received (e.g., col.8, lines 1-10).

Regarding claim 26, Hara discloses detecting a change in value among the N-bit signal groups (e.g., col.7, lines 35-40), processing the N-bit signal group into a transmission data group, and transmitting the group across the M-bit wide connection (e.g., col.7, lines 46-54).

Regarding claim 27, Hara also discloses N>M, dividing the N-bit signal groups into M-bit data groups (e.g., col.7, lines 46-54).

Regarding claim 28, Hara also discloses identifying the N-bit signal group that experienced the change in value (e.g., col.7, lines 24-28).

Regarding claim 29, Hara also discloses transmitting the data group by transmitting M bits at a time (e.g., col.7, lines 46-54).

Regarding claim 30, Hara also discloses determining whether the identified N-bit signal group has a token and scheduling the transmission if it has the token (e.g., col.8, lines 11-24).

5. Claims 1-18, 26-29 rejected under 35 U.S.C. 102(e) as being anticipated by Arimilli (US 6128707).

Regarding claim 1, Arimilli discloses transmission logic in the first logic device for transmitting any N-bit signal group that changed in value M bits a time across the M-bit conductive element and reception logic for receiving the N-bit signal group (e.g., col.3, lines 23-26).

Regarding claim 2, Arimilli also discloses an event detector for detecting a change among the N-bit signal groups and providing an event indication (e.g., col.4, lines 18-21).

Regarding claim 3, Arimilli also discloses an event detector for detecting a change for each N-bit signal group and providing an event indication (e.g., col.3, lines 24-26).

Regarding claims 4 and 5, Arimilli also discloses a packet scheduler for receiving the event indication and dividing the N-bit signal group associated with the event indication into M-bit data groups (e.g., col.3, lines 31-39).

Regarding claims 6 and 7, Arimilli also discloses scan out logic for selecting the M-bit data groups for transmission across the M-bit conductive element (e.g., col.3, lines 13-17).

Regarding claim 8, Arimilli also discloses header decode unit to receive the M-bit data groups and determining to which N-bit signal group these data groups belong (e.g., col.4, lines 5-8).

Regarding claim 9, Arimilli also discloses receiving, holding and passing a token (e.g., col.4, lines 11-14).

Regarding claim 10, Arimilli also discloses transmitting the M-bit data groups when it holds a token (e.g., col.4, lines 19-21).

Regarding claim 11, Arimilli also discloses holding the token when it receives an event indication (e.g., col.4, lines 19-21).

Regarding claim 12, Arimilli also discloses passing the token when it does not receive an event indication (e.g., col.3, line 67 – col.4, line 4).

Regarding claim 13, Arimilli discloses an event detector network for detecting a change in value among the N-bit signal groups (e.g., col.3, line 67 – col.4, line 4), and selecting the N-bit signal group that changed in value and scheduling its transmission (e.g., col.4, lines 22-25).

Regarding claim 14, Arimilli also discloses N>M and dividing the N-bit signal into a plurality of M-bit groups (e.g., col.3, lines 10-13).

Regarding claim 15, Arimilli also discloses event detectors, each associated with its own N-bit signal group (e.g., col.3, lines 24-26).

Regarding claim 16, Arimilli also discloses an event detector for each N-bit signal group detecting a change in value among the N-bit signal groups and providing an event indication identifying the particular changed signal group (e.g., col.3, line 67 – col.4, line 4).

Regarding claim 17, Arimilli also discloses the scheduler includes a plurality of packet schedulers each associated with its own N-bit signal group (e.g., col.3, lines 31-39).

Regarding claim 18, Arimilli also discloses the scheduler includes a plurality of packet schedulers each associated with its own N-bit signal group (e.g., col.3, lines 31-39).

Regarding claim 26, Arimilli discloses detecting a change in value among the N-bit signal groups (e.g., col.4, lines 18-21), selecting the changed N-bit signal group for transmission, processing into a transmission data group and transmitting the group across the M-bit wide connection (e.g., col.4, lines 19-24).

Regarding claim 27, Arimilli also discloses dividing the N-bit signal groups into M-bit transmission data groups (e.g., col.3, lines 9-17).

Regarding claim 28, Arimilli also discloses identifying the N-bit signal group that experienced the change in value and determining when the N-bit signal group should be transmitted (e.g., col.4, lines 17-20).

Regarding claim 29, Arimilli also discloses transmitting M bits at a time each M-bit data group (e.g., 9-17).

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Moriue (US 5940366) discloses a packet scheduling system based on change detection. Maguire (US 6108729) discloses a packet scheduling system in an internal bus embodiment. Trimberger (US 5652904) discloses a change detection system for an FPGA.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Clifford H Knoll whose telephone number is 703-305-8656. The examiner can normally be reached on M-F 0630-1500.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark H Rinehart can be reached on 703-305-4815. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-2100.

XUAN M. THAI
PRIMARY EXAMINER
TC2107

chk